

## **REMARKS**

Applicants have now had the opportunity to carefully consider the Examiner's comments as set forth in the Office Action mailed April 20, 2007. Reconsideration and re-examination of the application is respectfully requested.

### **The Office Action**

The Examiner rejected all claims in the applications. Claims 2-20, rejected under 35 U.S.C. 101, due to the claimed invention being directed towards non-statutory subject matter, as well as double patenting. The Examiner also rejected claims 2, 4, 7, 10-12 and 15-20 under 35 U.S.C. §103(a) as being unpatentable over Nanda (U.S. Patent No. 5,842,113) and further view of Leung (U.S. Patent No. 7,124,193).

### **The Subject Disclosure**

By way of review, the claimed disclosure is a method for adaptive quality control loop for link rate adaptation based on modulation and/or coding schemes and one or more spreading codes that adaptively select channel condition thresholds in real time. This application enables optimal channel threshold selection without measuring all of the factors that affect the channel condition thresholds. This adaptive quality loop involves adjusting channel condition thresholds with variable up and down steps based on target quality metrics, along with measurements such as error detection results, relative frequency of visiting modulation and/or coding schemes, and transmitted data rates. The quality metrics can include block error rate and/or bit error rate target criteria.

### **The Cited Art**

Examiner's primary reference is Nanda. Nanda is a facility for providing more efficient controlling transmitted power in a forward link of CDMA telecommunication systems. Nanda offsets a power reference level that adjusts level of the transmitted power using a power offset selected as a function of a transmission rate specified for the transmission of a coded frame. Nanda achieves more efficient controlling transmitted power by using the frame rate in order to select one of a number of different transmission schemes, uses reference power level in order to determine a

power level that will be used in the transmission of the channel coded frame. A controller processes feedback information to generate an estimate of an error rate that is occurring at a station. The power reference level is adjusted as a function of the estimate. Nanda does not specifically reference channel conditioning thresholds being based on a modulation and coding scheme.

Leung is a method of using link adaptation and power control for streaming services in a wireless network. Leung is directed towards a method of improving the performance of a streamlining service by link adaptation and power control. The effects of the combined link adaptation and power control scheme achieve a target error rate which is non-zero, but low enough so that the limited transmission and error concealment techniques are effective.

### **The 101 Rejections**

Claims 2-20 were rejected under 35 U.S.C. §101, stating that the claimed invention is directed to a non-statutory subject matter because as a whole, it does not accomplish a practical application. The Examiner goes on to state that in order to accomplish a practical application, it must be produce a useful, concrete and tangible result. It is hereby requested that the Examiner withdraw the 101 rejection for at least the following reasons.

The claimed invention does achieve a useful, concrete and tangible result. The claimed invention is an adaptive quality control loop for rate adaptation. It is hereby submitted that an adaptive quality control loop is useful in that it is specific, substantial, and credible, as specifically recited in the claim. Applying the method, recited in claim 2, yields an optimal channel threshold which is useful in performing quality control in data packet communication systems.

Claim 2 also recites a tangible real world result in that the adaptive quality control loop is used in the real world of data packet communications. The method outlined zeroes in on a modulation and coding scheme that is desirable in data packet communications.

Lastly, the result is substantially repeatable in the process and substantially produces the same result with each use. That result is a channel condition threshold measured in real time. Furthermore, the channel condition threshold is derived without measuring all the factors that affect selecting optimal channel condition

thresholds. Therefore, this result is useful, tangible and concrete and the 101 rejection should be withdrawn.

### **The Double Patenting Rejection**

The Examiner rejected claims 2-20 on the grounds of non-statutory obviousness-type double patenting. The Examiner rejected these claims in light of U.S. Patent No. 7,161,956. Included with this office action response is a terminal disclaimer to alleviate a double patenting rejection over a prior patent. In light of this terminal disclaimer, it is in compliance with 37 C.F.R. 1.321. It is respectfully requested that this rejection be withdrawn.

### **The 103 Rejections**

The Examiner rejected claims 2, 4, 7, 10-12 and 15-20 under 35 U.S.C. 103(a) as being unpatentable over Nanda in further view of Leung. It is requested that the Examiner withdraw the rejection for at least the following reasons.

#### **Nanda and Leung are not combinable, because Leung teaches away from Nanda.**

The Examiner claims that Nanda teaches a variable step size in determined using a desired frame error rate, which when combined with Leung, the frame error rate substitutes for a modulation encoding scheme. This, however, is an improper combination because even if Nanda does teach a variable step size being determined using a desired frame error rate, in Leung the desired modulation coding level is an unknown as stated in the quoted reference, "effectively combining power control with link adaptation is a difficult process, specifically, without knowing the transmission power beforehand, the SINR cannot be predicted, which is **needed** for choosing the appropriate modulation/coding level". Col. 3 line 62-66. Continuing on "in turn, without knowing the modulation level, the transmission power **cannot** be adjusted accordingly." Col 3 line 66- Col. 4 line1. (emphasis added) Taking the Leung reference as a whole, the combination of a Nanda and Leung does not teach the claimed invention. Leung in fact states that the appropriate modulation/coding level cannot be determined. Therefore, not only does the combination of Leung and Nanda not teach the claimed invention, but Leung teaches a method where the modulation/coding level is not known. If the desired modulation and coding scheme

is not known, then it cannot be used to determine the first variable size step. Accordingly, the rejection to claim 2 should be withdrawn.

Nanda and Leung in combination do not teach all claimed elements

Evan assuming that Nanda and Leung can be combined, Nanda and Leung do not teach all claimed elements. For example, claim 2 states that the first variable size step is determined using a desired MSC error rate for the first MSC level. Neither Nanda or Leung, alone nor in combination, teach or suggest determining a variable size step using a desired MSC error rate for a MSC level. The Examiner has conceded in the Office Action that Nanda does not teach that a variable size step is determined using a desired MSC error rate for the first MSC level. Instead, the Examiner claims that Nanda teaches that the variable step size is determined using a desired frame error rate. Leung also does not teach using the modulation/coding level in this manner. As stated above, Leung shows that the appropriate modulation/coding level is an unknown. If the modulation/coding level is unknown it cannot be used to determine anything, much less the variable size step. Therefore, even if combined the cited references do not teach or suggest all of the claimed element of the disclosure. For this reason and the reasons stated above, it respectfully requested that the rejection to claim 2 be withdrawn.

Because all remaining claims, claim 3-20 are either directly or indirectly dependent from claim 2, the rejections to these claims should also be withdrawn.

Dependent claims 4, 7 and 10

Referring to claims 4, 7 and 10 in particular, the Examiner states that one of ordinary skill in the art would clearly recognize that estimating levels of performance of a communication system using any of the frame, block or bit error rate is well known in the art. The Examiner, however, fails to give any evidence of such. Because the Examiner has the burden of showing that claimed features are inherent or known in the art, without evidence or explanation, the rejections to claims 4, 7 and 10, in particular, should also be withdrawn.

### CONCLUSION

For the reasons detailed above, it is respectfully submitted all claims remaining in the application (Claims 2-20) are now in condition for allowance. The foregoing comments do not require unnecessary additional search or examination.

In the event the Examiner considers personal contact advantageous to the disposition of this case, he/she is hereby authorized to telephone Joseph D. Dreher, at (216) 861-5582.

Respectfully submitted,

Fay Sharpe LLP

10/22/07  
Date

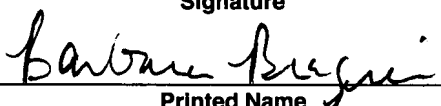
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